

REMARKS

I. The Claim Amendments

Applicants have canceled claims 2-3 without prejudice. Applicants have amended claim 1 and added claims 4-11 to more particularly point out and distinctly claim applicants' invention.

Applicants have amended claim 1 to recite a plant polypeptide involved in a signal transduction system for brassinosteroid hormone, said polypeptide consisting of the amino acid sequence from Met at position 1 to Arg at position 1057 of SEQ ID NO: 2. Support for this amendment may be found, for example, on page 6, lines 16-20 and on page 6, line 31 to page 7, line 4.

Support for added claims 4-11 may be found in the specification (see, e.g., page 6, lines 16-20; page 6, line 31 to page 7, line 4; page 8, lines 9-12 and page 13, line 31 to page 14, line 10).

None of these amendments adds new matter. After entry of the amendments, claims 1 and 4-11 will be pending.

II. The Rejection Under 35 U.S.C. §§ 101 and 112, First Paragraph

Former claims 1-3 stand rejected under 35 U.S.C. § 101, for allegedly lacking either a substantial asserted utility or a well established utility. Former claims 1-3 also stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly not providing an enabling disclosure. Specifically, the Examiner contends that the specification does not provide evidence that the polypeptide of the invention controls a signal transduction system for brassinosteroid hormone. Also, the Examiner contends that, because the claimed

invention stands rejected under 35 U.S.C. § 101, the skilled artisan does not know how to use the claim invention. Applicants traverse in light of the amendments above and the following remarks.*

(i) Utility

Each of amended claim 1 and added claims 4-11 recites a polypeptide involved in a signal transduction system for brassinosteroid hormone. The instant specification demonstrates that the polynucleotide encoding the polypeptide is expressed in all organs of the plant and that the polypeptide has sequence motifs suggesting its involvement in signal transduction. See, e.g., Example 4; page 12, lines 3-9 and Example 5; page 12, lines 18-29. The instant specification further describes phenotypic effects associated with brassinosteroid insensitive mutants and indicates that these phenotypes cosegregate with a mutant form of the gene. See, e.g., Example 2; page 10, lines 17-21. Thus, the instant specification clearly demonstrates a relationship between the claimed polynucleotide and an altered response to brassinosteroid hormone.

Furthermore, scientific understanding of the molecular genetics of brassinosteroid biosynthesis and mode of action will be further enhanced through the availability of molecular research tools for the analysis of the biological function of brassinosteroids. The polynucleotides of applicants' invention, as well as the plants and plant cells comprising them, are useful as just such research tools. Thus, contrary to the

* Former claims 2-3 have been canceled without prejudice, thereby rendering moot all rejections of these claims.

Examiner's assertion, one of ordinary skill in the art would recognize the utility of the claimed invention.

(ii) Enablement

The specification as filed clearly enables the claimed invention. For example, the specification describes plants with a mutation in the gene comprising SEQ ID NO: 2, describes that mutant plants exhibit phenotypes indicative of altered brassinosteroid signaling and confirms that mutant plants are non-responsive to brassinolide. See, e.g., Examples 3-6. Provided with the teaching of the specification, one of ordinary skill in the art could readily make and use the claimed polynucleotide and produce and use the claimed plant cells and plants and would reasonably expect that the plant cells and plants would exhibit alterations in the brassinosteroid hormone regulatory pathway.

Further, as described above in § II(i), the claim invention has substantial asserted or well established utility. Hence, the skilled artisan knows how to use the invention.

III. The Rejection Under 35 U.S.C. § 112, First Paragraph ("Written Description")

Former claims 1-3 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly containing subject matter which was not described in such a way as to reasonably convey to one of skill in the art that the inventors had possession of the invention at the time of filing. Specifically, the Examiner states that the claims recite a function, but that the function is not associated with any structure. The Examiner further states that the specification does not provide an adequate written description for nucleic acid sequences

retaining 80% homology to SEQ ID NO: 2 which retain the claimed functionality.

Applicants traverse in light of the above amendments and the following remarks.

As described above, amended claim 1 and added claims 4-11 recite a polypeptide involved in a signal transduction system for brassinosteroid hormone consisting of an amino acid sequence from Met at position 1 to Arg at position 1057 of SEQ ID NO: 2. The specification, as filed, clearly provides adequate written description for the invention as claimed. For example, the specification describes plants with a mutation in the gene comprising SEQ ID NO: 2, describes that mutant plants exhibit phenotypes indicative of altered brassinosteroid signaling and confirms that mutant plants are non-responsive to brassinolide. See, e.g., Examples 3-6.

IV. The Rejection Under 35 U.S.C. § 112, Second Paragraph

Former claims 1-3 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Examiner states that it is unclear if the former claims 1-3 reads only on polynucleotide which encode SEQ ID NO: 2 or if the claims read on any polynucleotide that encodes a polypeptide that has the recited function.

Applicants have amended claim 1 to recite that the polynucleotide encodes a polypeptide “consisting of an amino acid sequence from Met at position 1 to Arg at position 1057 of SEQ ID NO: 2,” thus obviating the Examiner’s rejection.

V. The Rejection Under 35 U.S.C. § 102

The Examiner states that applicants cannot rely on the foreign priority papers to overcome the rejection under 35 U.S.C. § 102 because a translation of said papers has not been made of record in accordance with 37 C.F.R. § 1.55. Accordingly, applicants enclose

herewith a certified translation of the priority document, Japanese Patent Application No. 2000-149106.

Former claims 1-3 stand rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Sasaki *et al.*, "GenBank™ Accession AP001859, 27 May 2000" or Sasaki *et al.*, "EMBL Accession AP001859, 20 April 2000." The Examiner states that Sasaki *et al.* teach a polynucleotide encoding a polypeptide encoding an amino acid sequence from Met at position 1 to Arg at position 1057 of SEQ ID NO: 2.

Applicants enclose herewith a copy of an abstract from the Program and Proceedings of the 22nd Annual Meeting of the Molecular Biology Society of Japan (Exhibit 1) and an English translation thereof (Exhibit 2). This article was published on November 22, 1999 by the applicants (i.e., prior to the publication date of Sasaki *et al.*). Applicants note that this abstract was published not more than one year prior to the filing date of the instant application and less than one year prior to the filing date of the priority application.

Applicants enclose herewith a Declaration under 37 C.F.R. § 1.131 which avers, on the strength of the above abstract, that the applicants were in possession of the instant invention at least by November 22, 1999, i.e. before the publication date of the two Sasaki *et al.* references. Therefore, the two Sasaki *et al.* references are not prior art against the instant invention under 35 U.S.C. § 102(a).

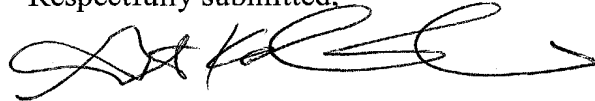
Applicants also enclose herewith a Declaration under 37 C.F.R. § 1.132, which avers that the above abstract is the applicants' own reference and that the second-

named author on the above abstract (Osamu Ueno) is not an inventor of the instant invention. Therefore, the abstract itself is not prior art against the instant invention under 35 U.S.C. 102(a).

VI. Conclusion

For all the foregoing reasons, applicants request that the Examiner allow pending claims 1 and 4-11 to issue.

Respectfully submitted,



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Copy of claim 1 marked up pursuant to 37 C.F.R. § 1.121(c)(1)(ii) to show changes made

1. (Twice Amended) An isolated polynucleotide encoding a plant polypeptide [which controls] involved in a signal transduction system for brassinosteroid hormone, the [polynucleotide encoding an] polypeptide consisting of the amino acid sequence from Met at position 1 to Arg at position 1057 of SEQ ID NO: 2 [in the SEQUENCE LISTING, including any polynucleotide encoding an amino acid sequence with at least 80% homology to SEQ ID NO: 2].